



HAL
open science

Understanding levers and barriers of the emergence and persistence of emerging rural circular biocluster initiatives: Case of Occitanie region in the south of France

Stéphane Ondo Ze, Mechthild Donner, Sandrine Costa, Zouhair Bouhsina

► To cite this version:

Stéphane Ondo Ze, Mechthild Donner, Sandrine Costa, Zouhair Bouhsina. Understanding levers and barriers of the emergence and persistence of emerging rural circular biocluster initiatives: Case of Occitanie region in the south of France. 28th Annual International Consortium on Applied Bioeconomy Research (ICABR) Conference, Jun 2024, Ravello (Napoli), Italy. . hal-04626926

HAL Id: hal-04626926

<https://hal.inrae.fr/hal-04626926v1>

Submitted on 27 Jun 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

INTRODUCTION

The shift towards a circular bioeconomy has fostered the emergence of **rural circular bioclusters**. These collaborative projects aim to bring together diverse stakeholders in rural communities to promote sustainable resource management, value creation, and social well-being. However, despite their immense potential, the success of these bioclusters depends on **understanding the key factors that influence their development and long-term viability**.

1- KEY CONCEPTS

- A **biocluster** is a certain type of sustainability-oriented cluster, composed of a geographically close group of interconnected companies and associated organisations in the field of the bioeconomy (Ayrapetyan and Hermans, 2020).
- The **viability** of an emerging regional biocluster is its ability to maintain, innovate, co-create and share value while respecting the environmental limits and taking into account the social issues of the area in which it is located (own definition).

2- OBJECTIVE

Propose an **analytical framework for assessing the viability of emerging rural bioclusters** in the Occitanie region, located in the south of France.

Bibliography :

- Anderies J. M., Mathias J.-D., Janssen M.A. (2019) Knowledge infrastructure and safe operating spaces in social-ecological systems. Proc Natl Acad Sci USA. 2019 Mar 19;116(12):5277-5284. doi: 10.1073/pnas.1802885115.
- Ayrapetyan, D., Hermans, F., 2020. Introducing a multiscale framework for biocluster research: a meta-analysis. Sustainability 12 (9), 3890. <https://doi.org/10.3390/su12093890>.
- Donner, M. and Al., (2021). Critical success and risk factors for circular business models valorising agricultural waste and by-products. Resources, Conservation and Recycling, 165, 105236.
- Salvador, R., and Al., (2022). How to advance regional circular bioeconomy systems? Identifying barriers, challenges, drivers, and opportunities. Sustainable Production and Consumption.

3- METHODOLOGY

- An **analytical framework** based on a literature review from bioeconomic business models, clusters, the circular economy, supply chains and proximity analysis.
- **Case studies**, in the form of semi-directive interviews.



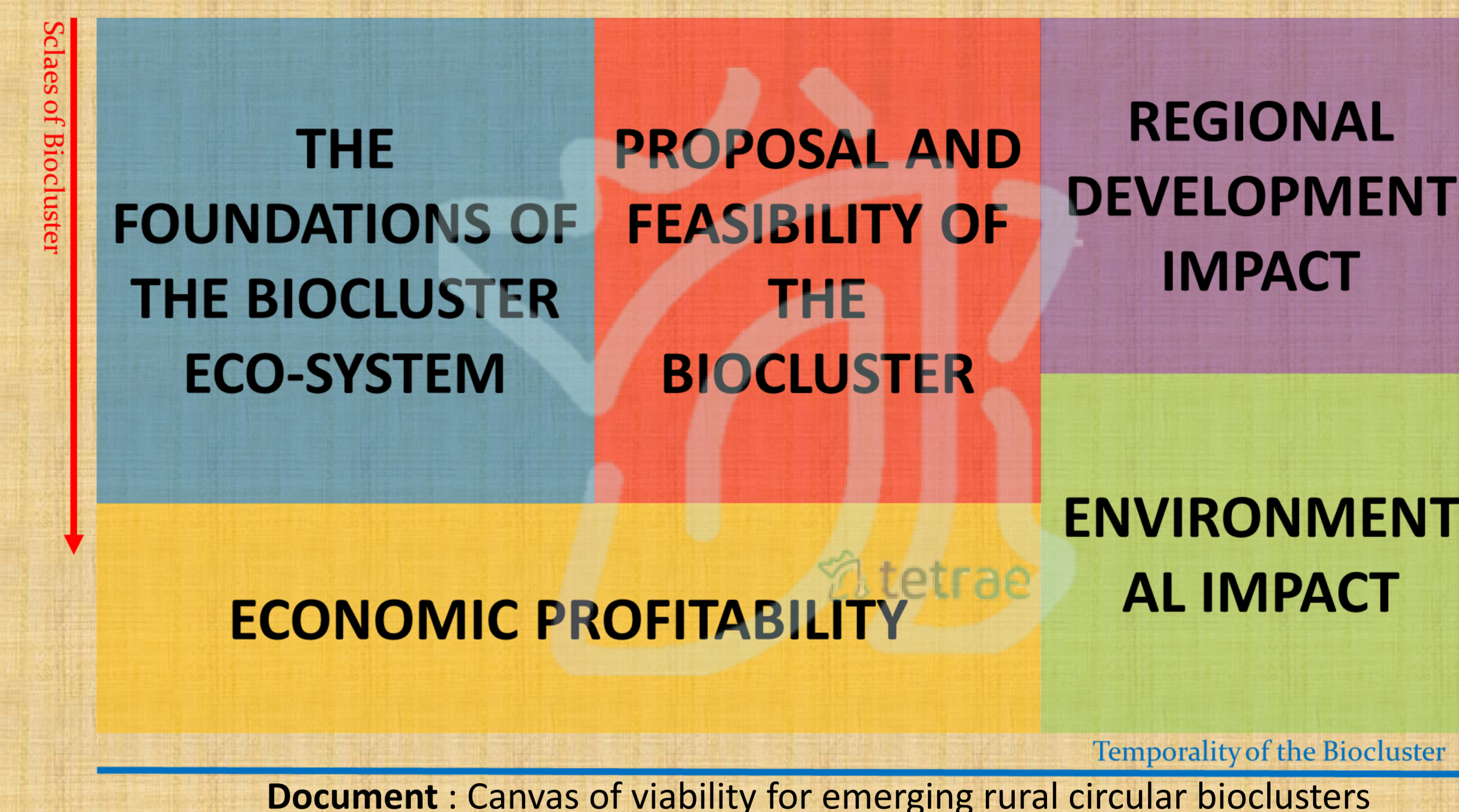
Photos : Example of structures surveyed (from right to left) :

4- RESULTS

The factors influencing the trajectory and long-term success of bioclusters are not isolated entities, but rather **interconnected elements** that can act as either levers (enablers) or barriers (challenges) (Donner, M. et al., 2021) . These factors can have opposing effects depending on the specific context which relates "**safe operating spaces**" (Anderies et al. 2019).

Factors	Levers (Enablers)	Potential Opposing Effects (Barriers)
Organizational	Strong leadership	Excessive control
	Clear common rules	Rigid rules
Economic, Financial & Marketing	Access to funding	Dependence on external funding
	Competitive bio-based products	High production costs
	Market opportunities	Short-term profit focus
Institutional & Legal	Public subsidies	Overreliance on subsidies
	Supportive regulations	Overly complex regulations
Technical & Logistical	Acquisition of skills and tools	High costs
Socio-Territorial	Successful cooperation	Lack of diversity or inclusion
	Socio-geographical proximity	Difficult to set up self-control

Table : the opposing effects of key levers and barriers of biocluster in Occitanie



Document : Canvas of viability for emerging rural circular bioclusters

5- DISCUSSION AND CONCLUSION

This research explores the factors that foster and impede the development of rural circular bioclusters. By understanding these dynamics, stakeholders can leverage bioclusters for regional **economic growth, environmental stewardship, and social revitalization**.

Key Findings:

- **Territory as Enabler:** Rich local history, abundant resources, and skilled workforces create a strong foundation for bioclusters. Local market focus further bolsters long-term sustainability.
- **Proactive Environmental Integration Needed:** While the environmental benefits are recognized, a more proactive approach to integrating environmental practices into biocluster strategies is crucial.

The Biocluster Viability Canvas: A useful tool

To address these challenges, we developed the Emerging Rural Circular Bioclusters Viability Canvas. This multi-criteria tool empowers regional leaders to assess their initiatives through a comprehensive business model evaluation.